

## ENTRANCE BARRICADE FOR VEHICLES USING LOADING DOCKS, AND THE LIKE

### Reference to Related Application

This application claims priority from U.S. provisional patent application Serial No. 60/259,613, filed December 21, 2000, the entire contents of which is incorporated hereby by reference.

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### Field of the Invention

This invention relates generally to barricades for vehicles and, in particular, to a barricade providing an overhead member for use with vehicles such as trucks on loading docks.

### Background of the Invention

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With the advent of "superstores" for home improvement, in particular, it is now common for larger vehicles such as semi-trucks and other multi-axle carriers to bring retail goods right up to loading areas frequented by unwary consumers. Without some type of barrier for restricting the movement of such vehicles, their entry into populated areas could prove dangerous.

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Although there have been proposals for overhead barriers for loading dock use, existing approaches tend to be complex and therefore expensive. U.S. Patent No. 5,271,183, for example, discloses a safety barrier assembly incorporating a movable barrier for an access passageway or doorway. The assembly includes a pair of upright

support members and vertically traveling barrier means with at least two horizontally disposed elongate segments being selectively moveable between an operative passage blocking mode and inoperative non-blocking mode. Drive means are provided for moving the segments and lost motion means allow for positioning the segments a  
5 predetermined first distance apart when in the operative mode while positioning the segments close together when in the inoperative mode. Stop means may be provided for engaging one of the elongate members when in the operative mode.

U.S. Patent No. 5,564,238 resides in a safety gate to be mounted on a loading dock. The safety gate includes a pair of vertical columns which are mounted on the floor  
10 of the dock on either side of a doorway that can be enclosed by an overhead door. A barrier or beam is mounted for sliding movement on the vertical columns and can be moved from an upper storage position where it is located above the doorway to a lower operative position where it extends across the doorway and will prevent material handling equipment, or other objects from accidentally passing through the doorway and falling to  
15 the driveway adjacent the dock.

The barrier is composed of a pair of elongated side members which are connected by a pair of end members and a series of spaced transverse members. Each column is disposed in the space between an end member and the adjacent transverse member, and the outer surface of one of the side members facing the dock is provided with a resilient  
20 shock absorbing layer. The weight of the barrier is counterbalanced by a pair of counterweights that move within the hollow vertical columns, and the barrier is held in the lower position by a releasable latch.

Given the complexity of such solutions, the need remains for an inexpensive yet effective barrier system to define an opening for such loading/unloading vehicles, to ensure that they come to rest at a desired position, and do not back up too far into pedestrian spaces.

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### Summary of the Invention

This invention improves upon the existing art by providing a sturdy, very low maintenance barrier defining width and height dimensions for use by vehicles such as semi-trucks, and the like, on loading docks. In broad and general terms, the invention includes a pair of parallel vertical side members defining an entrance with, and an upper  
10 horizontal member connected therebetween, defining a vertical extent. The various members are preferably comprised of rigid metallic pipes covered by resilient polymeric material.

The preferred embodiment of the invention includes a pair of vertical side members onto which there is installed a horizontal member having a length that extends  
15 beyond the outermost extent of the side members. In an alternative embodiment, the vertical members extend vertically higher than the vertical extent of the horizontal member. In a further alternative embodiment, the height may be adjusted or the area defined by the vertical and horizontal members entirely restricted to vehicle traffic, preferably through the use of multiple horizontal members spanning the vertical  
20 members.

### Brief Description of the Drawings

FIGURE 1 depicts a first embodiment of the invention, including a pair of vertical side members onto which there is installed a horizontal member having a length that extends beyond the outermost extent of the side members;

5       FIGURE 2 illustrates an alternative embodiment of the invention, wherein the vertical members extend vertically higher than the vertical extent of the horizontal member; and

FIGURE 3 is a detail drawing which depicts a fastener welded interiorly of a horizontal member to stabilize the structure.

10                                   Detailed Description of the Invention

Figure 1 depicts a first embodiment of the invention, including a pair of vertical side members 102 and 102' onto which there is installed a horizontal member 104 with a length that extends beyond the outermost extent of the side members 102 and 102', as shown. In the preferred configuration, the vertical side members 102 and 102', each  
15       comprise a desired length of schedule 40 pipe 104 and 104' around which there is a placed a 4 inch I.D. pipe sleeve 106 and 106', respectively.

Likewise, the horizontal member 104 preferably comprises a larger-diameter inner metal pipe, such as a 6 inch schedule 40 pipe 110, around which there is installed a 6 inch I.D. pipe sleeve 112. Holes 114 and 116 are formed through both the pipe 110 and  
20       sleeve 112, to receive at least the inner pipes 104 and 104' of the parallel vertical

members.

As shown in detail AA, an end cap bar 120, including a threaded receptacle 122, is welded in place near the outermost extent of each open end of the upper pipe 110, enabling a screw 124 to be used to fasten end caps 126 onto either end of the horizontal member 104. In addition, as shown in detail BB, a bolt-receiving nut 130 is welded in place to receive a bolt 132 within the interior of the horizontal member 104, when placed on the vertical members 102 and 102'. Although not essential to the invention, the welded nut and threaded member 132, which may be provided at any convenient point within the horizontal member 104, present lift-off of the horizontal member once the entire assembly is completed.

Figure 2 illustrates an alternative embodiment of the invention, wherein the vertical members 202 and 202' extend vertically higher than the vertical extent of the horizontal member 204. Otherwise, assembly is akin to that depicted in Figure 1. Namely, as shown in Figure 3, a nut 302 is welded interiorly of the horizontal member 204, to receive a set screw 304 to stabilize the structure. End caps 306 are preferably provided and fastened in a manner similar to that described with reference to Figure 1. Also similar to Figure 1, all of the members, horizontal and vertical, shown in Figures 2 and 3, include inner metal pipes such as schedule 40 steel pipes, covered by sleeves, preferably of a resilient plastic material such as polyethylene or polypropylene. In addition, the vertical members, 202 and 202', similar to vertical members 102 and 102' in Figure 1, are dropped into core holes, formed in a location appropriate on the loading dock or other platform surface. As an alternative to a drop-in construction, the members

may, of course, be cemented in place.

The embodiments thus far described, define a side-to-side or width extent determined by the distance between the outer walls of the vertical members, and a height extent, defined by the distance between the platform surface and the lowermost extent of the horizontal member, regardless of whether the horizontal member extends beyond the vertical members, or vice versa. In a further alternative embodiment, however, the height may be adjusted or the area defined by the vertical and horizontal members entirely restricted to vehicle traffic, preferably through the use of multiple horizontal members spanning the vertical members, as shown by broken lines 150 in Figure 1 and 250 in Figure 2. As with the more primary horizontal and vertical members defining the structure, these optional vertical members 150 and 250 are preferably comprised of rigid metallic pipes covered by resilient polymeric material.

I claim: